

REMARKS

Summary of the Office Action

Claims 1-12 were pending in the application.

Claims 1-12 have been rejected under 35 U.S.C. § 112 as being indefinite. The claims have also been variously rejected under 35 U.S.C. 102(b) or 102(e) as being anticipated by one or more references: claims 1, 2, 6, 7, 8, 11 and 12 as being anticipated by JP 3-86606 ("JP '606"); claims 1, and 6-8 as being anticipated by JP 62-24712 ("JP '712"); claims 1, 4, 6-8 and 11-12 as being anticipated by Suzuki et al U.S. patent No. 6405772 ("Suzuki"); claims 1, 2, 4, 6-8, 11 and 12 as being anticipated by JP 5-77613 ("JP '613"). Claims 1, 2, 4, 6-8, 11 and 12 also have been rejected in the alternative under 35 U.S.C. § 103(a) as obvious from JP '613.

Additionally, the claims have been variously rejected under 35 U.S.C. 103(a) as obvious in view of one or more references: claims 2, 4, 11-12 in view of JP '712; claims 1-8 and 11-12 in view of Suzuki and JP 2-182502 ("JP '502"); claims 9 and 10 in view of Suzuki, JP '502 and Tagashira et al. U.S. patent No. 5679186 ("Tagashira"); claim 3 in view of JP '613 and of JP 4-218407 ("JP 407"); claim 3 and 5 in view of JP '613, JP '502, and at least one of JP-62-59107 ("JP '107") and Great Britain patent GB 546975 ("GB '975"); and, claims 9 and 10 in view of JP '613 and GB '975.

Further, the Examiner indicates that the declaration submitted in this case incorrectly identified the filing date of the priority application in this case.

Applicant's Reply

Applicant encloses a new Declaration that correctly identifies November 13, 2000 as the filing date of the priority application in this case.

Applicant has amended claims 1 and 11 to more clearly define the invention. Amended claims 1 and 11 now include several clarifying recitations and include the limitation of claim 2, which has been canceled without prejudice. Applicant respectfully traverses the § 112 indefiniteness rejection, and the §102(b), §102(e) and §103(a) prior art rejections.

The indefiniteness rejection

Applicant's invention, according to claims 1 and 11, concerns treads for radial carcass tire intended to be fitted on the driving axle of a heavy vehicle. The treads include tread elements, each of which has a front section and rear section. The tread elements are provided with a distribution of wells. Claims 1 and 11 have been amended to describe this distribution of wells by reciting the front and the rear sections of a tread element "comprise a positive number of wells." This recitation is clear and covers, for example, all of the different numerical combinations listed by the Examiner. (Office Action, page 2 section 3). The recitation also, for example, covers the case where a single well extends from one section into the other. (Specification, page 5 paragraph [0014]). Applicant respectfully submits that both claims 1 and 11 now conform to all 35 U.S.C. § 112 requirements.

The Prior Art Rejections

Claims 1 and 11

Independent claims 1 and 11 were rejected as anticipated by any of JP '606, JP '712, Suzuki, and JP '613. Claims 1 and 11 were also rejected in the alternate as obvious from the last of these four references (JP '613). Applicant respectfully traverses.

Applicant's inventive treads according to claim 1 include tread element structures that are designed for prolonged tire wear. A tread element includes two adjoining sections: a front section and a rear section that respectively have a low and high wear resistance. All such tread elements have structures that include a number of wells whose depths are substantial fractions of the thickness of the tread elements and whose cross-sectional dimensions are substantially small. The wells are at least 5 mm deep. The wells open only to the upper contact surfaces of the tread elements. The number of wells in a tread element is distributed between the front and rear sections so that the total volume of the wells in the front portion (V_{pa}) is more than the total volume of the wells in the rear section (V_{pf}). Claim 11 additionally requires the wells to have cross sectional areas of between 0.2 mm^2 and 12 mm^2 .

Applicant respectfully submits that none of the references cited by the Examiner, whether taken individually or in combination, show all of the elements of either claim 1 or claim 11.

For example, the first cited reference, JP '606, relates to tread element structures for reducing heat generation. JP '606 seeks to control heat generation in a tread element by changing surface contact areas of various portions of the tread element by recessing the surface of the various portions with "dented regions". These dented regions are wide and shallow. Unlike applicant's wells the dented regions do not have any substantial depth relative to the thickness of the tread element. (See e.g., figures 2-6). Applicant further notes that in contrast to JP '606, in applicant's invention the surface contact area of a tread element is substantially unchanged by the presence of the wells (because the wells have small sections).

The second cited reference, JP '712, relates to tread elements with sipes for draining road water. Applicant respectfully submits that JP '712 only shows patterns of holes

that have different and often opposite orientations in different tread elements (See e.g., figures 1-12). In particular, JP '712 does not show or suggest that all of the tread elements have a distribution of well volumes divided between a front section and a rear section of a tread element in the manner required by amended claims 1 and 11.

Like JP '712, the third cited reference, Suzuki, relates to tread elements with sipes, but now for improving the steerability of tires. Applicant respectfully submits that sipes of Suzuki have large lateral lengths or dimensions. (See e.g. figures 1-3). Suzuki's sipes are unlike applicant's wells whose section dimensions ($\sim \sqrt{S}$) are substantially small. Further, applicant respectfully submits that Suzuki only shows patterns of sipes that have different and often opposite orientations in different tread elements. (See e.g., figures 1-3). In particular, Suzuki does not show or suggest that all of the tread elements have a distribution of well volumes divided between a front section and a rear section of a tread element in the manner required by amended claims 1 and 11.

The last of the four cited references, JP '613 also fails to disclose the elements of applicant's claims 1 and 11. JP '613 relates to treads for improved travelling performance on an ice road. JP '613 only shows patterns of holes that have different and often opposite orientations in different tread elements (See e.g., JP' 613 figures 1-3). In particular, as noted by the Examiner, JP '613 does not show or suggest that all tread elements have a distribution of well volumes divided between a front section and a rear section of a tread element in the manner required by claims 1 and 11. (Office Action, page 7, section 12). Further, applicant notes that JP '613 teaches "uniform rigidity" of the tread blocks. (See e.g., Abstract, line 1). This is contrary to applicant's claimed treads in which the first and second sections that have different wear

resistance (i.e. rigidity). Applicant therefore submits that claims 1 and 11 are neither anticipated by nor obvious from, but instead are contrary to the teachings of JP '613.

Thus the four cited references as discussed above, taken individually or in combination, do not show, teach or suggest the elements of either of applicant's claims 1 or 11. Therefore, claims 1 and 11 are patentable over these cited references. Further, claims 3-10 and claim 12 that depend from one of claims 1 or 11 are also patentable.

Conclusion

For the reasons set forth above, applicant requests that the 35 U.S.C. § 112 rejections and the 35 U.S.C. § 102(b), 102(e) and 103(a) prior art rejections be withdrawn. Applicant respectfully submits that this application is now in condition for allowance. Reconsideration and prompt allowance of which are requested.

Respectfully submitted,

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Déclaration et Pouvoirs pour Demande de Brevet

French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

SCULPTURE DE BANDE DE ROULEMENT DE PNEUMATIQUE A CARCASSE RADIALE

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

TREAD PATTERN FOR A RADIAL CARCASS TIRE

Cette déclaration est du type suivant:

This declaration is of the following type:

original	<input checked="" type="checkbox"/>	original
modèle	<input type="checkbox"/>	design
phase nationale du PCT	<input type="checkbox"/>	national stage of PCT.
divisionnaire	<input type="checkbox"/>	divisional
continuation	<input type="checkbox"/>	continuation
continuation en parties (C-E-P)	<input type="checkbox"/>	continuation-in-part (C-I-P)

à dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:

☒ a été déposée le 13 November 2001 sous le numéro de demande des Etats-Unis ou le numéro de demande international PCT 10/014,395 et modifiée le (le cas échéant).

the specification of which is attached heret unless the following box is checked:

☒ was filed on 13 November 2001 as United States Application Number or PCT International Application Number 10/014,395 and was amended on (if applicable).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

☐ Conformément aux termes de cette obligation, les informations exigées sont jointes 37 CFR 1.98 aux présents.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

☐ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.98.

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

00/14674 FRANCE

(Number) (Country)
(Numéro) (Pays)

(Number) (Country)
(Numéro) (Pays)

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(Application No.)
(No de demande)

(Application No.)
(No de demande)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, j reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

(Application No.) (Filing Date)
(No de demande) (Date de dépôt)

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J déclare par le présent acte que toute déclaration incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'un amendement ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontaires ou fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Claimed
Droit de priorité revendiqué

13/11/00

(Day/Month/Year Filed)
(Jour/Mois/Année de dépôt)

[✓]

(Day/Month/Year Filed)
(Jour/Mois/Année de dépôt)

[]

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

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(Date de dépôt)

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(Date de dépôt)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIRS: En tant qu'inventeur cité, j désigne par la présent l'(les) avocat(s) t/ u agent(s) suivant(s) p ur q'uils p ursuive(nt) la pr cédure de c tt demand de brevet t traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques: *(mentionner le nom et le numéro d'enregistrement).*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/ or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*


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(Supply similar information and signature for third and subsequent joint inventors.)